

HYDROLOGICAL SURVEY

of

SWEDES FLAT AREA

(Portion of Hundreds of Wirrega and Parsons).

For W.B. and A.D. Mune, Mundalla.

Accompanied by Mr. Mune, a survey of this area was made on 9th March, 1954.

REQUIREMENTS:

Main object is to endeavour to prevent flooding and consequent crop destruction in the central portion of the area, by disposal of surplus surface waters underground. It is also desired to utilise any bores sunk for drainage purposes as a source of summer water supply for irrigation purposes.

GENERAL GEOLOGY, etc.

Swede's Flat is a large natural depression with its main axis tending North-west - South-east over approximately ten miles, and an average width around two miles. Moderate stony ridges (aeolianite) surround the flat.

Source of the surface floodwaters appears to be purely local, and it is customary for the flat to be covered with an average depth of six inches of water during normal winters. There is no pronounced surface gradient on Swede's Flat.

UNDERGROUND WATERS:

A number of bores and wells exist on the flat, and the general log as supplied by Mr. Mune would be:

- 0 - 74 Mainly clay, occasional sandy layer, and rarely a thin hard band.
- 74 - 80 Coral limestone - water bearing. This water does not rise above 74 ft. below surface.
- 80 - 130 Fine drift sand.
- 130 on Coral limestone. Large supply of water. This water rises to 74 ft. below surface.

DRAINAGE PROSPECTS:

There are a number of natural 'runaway holes', several on the flat, but mainly on its margins, which have been successfully utilised for drainage to a limited extent.

The fact that the static water level is so far below surface (74 ft.), together with the existence of a good aquifer from 130 ft. on, makes the underground drainage prospects sufficiently encouraging to warrant a trial.

Emphasis must however, be laid on the fact that for underground drainage to be maintained satisfactorily, the following rules must be observed:

- (1) Only clear water is passed down the bore. This is vital, as the entrance of floating debris, leaves, seeds, etc., will eventually choke off the openings in the coral layer through which drainage is taking place.

An effective silt trap is required, and also a screen.

- (2) Drainage be not attempted at a rate beyond the capacity of the bore. Some form of control of rate of entry of surface water to the bore is necessary.

RECOMMENDATIONS:

- (1) More active use be made of existing natural 'runaway holes'. These should be cleaned out and opened up, and as much water as possible be disposed into them.
- (2) Sink one trial drainage bore - preferably 8" casing - in an area to be selected by Mr. Mune. This bore should be drilled at least 20 ft. into the limestone (i.e. around 150 ft. below surface) and cased all the way, with the bottom length perforated or slotted.

Drainage capacity should be tested for eight hours.

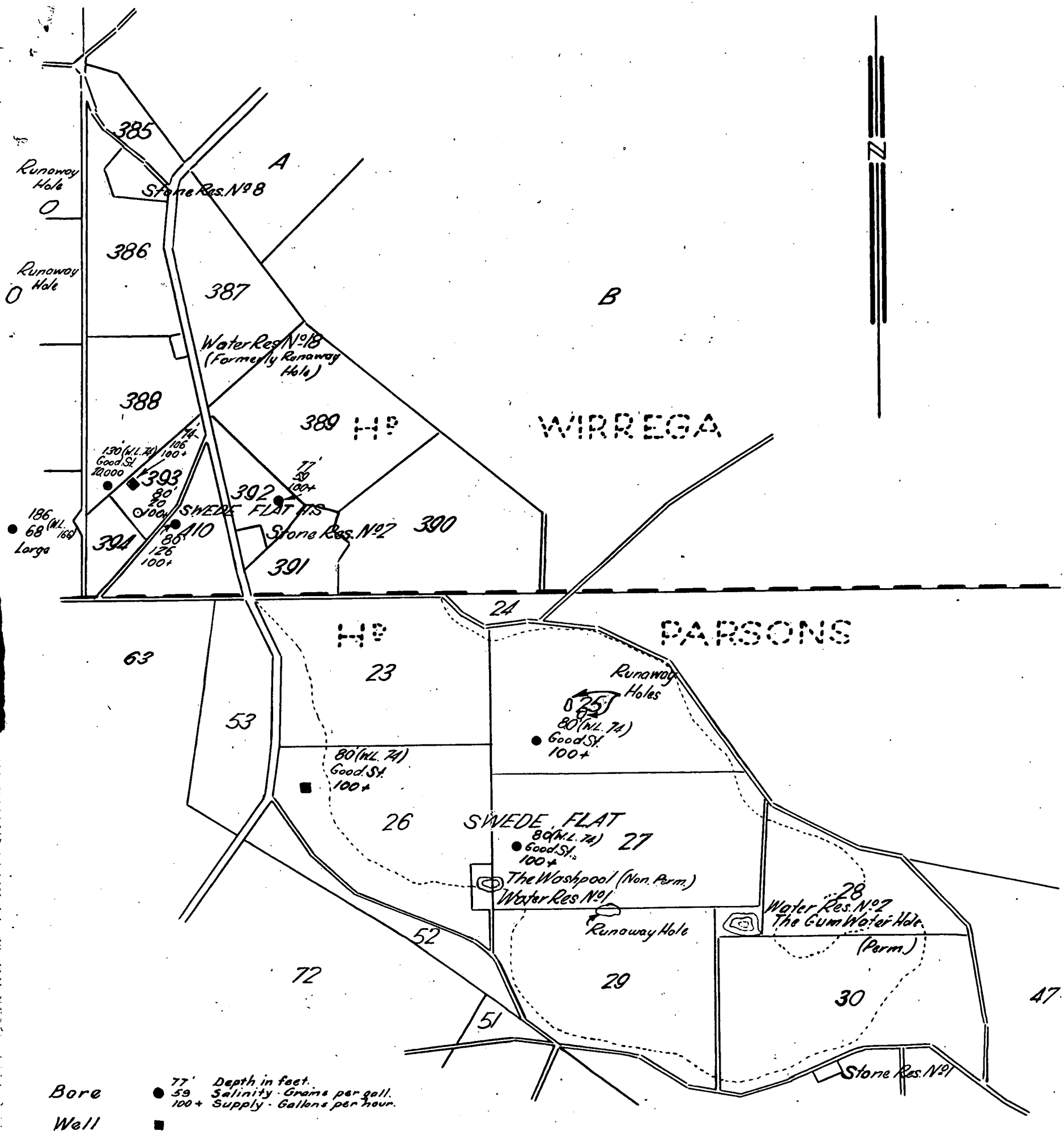
Test the effect of this bore as a drainage proposition over several years, ensuring that only clear water is being drained, and the capacity of the bore is not overtaxed.

RECOMMENDATIONS (Continued):

- (3) Utilisation of the drainage bore as a summer watering point should be a workable proposition, provided the bore is not overpumped.

11/3/54.

T. A. Barnes
DEPUTY GOVERNMENT GEOLOGIST



S.A. DEPARTMENT OF MINES					
Approved	Passed	Dr. T. A. B.	UNDERGROUND WATER SURVEY	D.M.	Scale: 40 Chains to 1 Inch
		Tcd. P. J. B.	SWEDE FLAT	Reg.	S874
		Ckd. R. R.	PIN HQS WIRREGA & PARSONS		K.B.C.
Director		Exd.	W.B. MUNE MUNDALLA		Date 12.3.54